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(54) [Title of the Invention] Dissection suturing device

(57) [Abstract]

[Purpose] To use for autopsies of corpses, and to obtain a suturing device which does not give rise to doubt about the cause of death.

[Constitution] A suturing device 19 constituted of combustible material that is U-shaped or \sqcap -shaped formed by the left and right needle stem parts 12 and 13 which are held by a connecting stem part 11. There are a hooks 14 provided at the terminal of every needle stem part 12 and 13 which point toward the direction of the other nettle stem sides (12 or 13), which are parallel to each other and form a U-shape or \sqcap -shape. The terminals of each nettle stem side 12 and 13 are formed into a hook or arrowhead shape and are a shape which is not easily removed after inserting into the autopsied body. Because the suturing device is constituted from combustible material, nothing remains after cremation disposal of the autopsied corpse. By using this device, no doubt is created about the cause of death.

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[Claims]

[Claim 1] A suturing device wherein (a) a U-shape or \supset -shape is formed from a connecting stem part 11 and needle stem parts 12 and 13 which project out in parallel from both ends of said stem part 11, (b) from the terminals of each of said needle stem parts 12 and 13, a hook 14, which pushes out in the direction of said other parallel needle stem parts sides (12 or 13), and (c) at the part at which hook tip 16 extends from the point 15 of each of the needle stem parts 12 and 13, the intersecting angle α between surface 17, which is a part that faces the other parallel needle stems (12 and 13) and the stem core 18 of the needle stem parts (12 and 13) form an acute angle, and (d) the entire body is constituted from combustible material.

[Detailed Explanation of the Invention]

[0001]

[Field of the Invention] This invention relates to a suturing device which sutures the incisions of an autopsied body that has incision wounds.

[0002]

[Prior Art] Clips and suturing thread are used in surgery for suturing the incisions of an autopsied body. When using suturing thread, it is possible to neatly suture the incisions, but skill is required, and it takes time. On the other hand, when using a clip, because it is permissible to only close by pinching the incision together, suturing can be done easily, but the result is crude, and it is not suitable for detailed work or for the interior of the body. However, unlike surgery, the autopsied body after utilization is cremated, and therefore, it is not necessary to neatly suture the incisions which are produced by an autopsy. As a result of this fact, clips which can be easily used to suture autopsied bodies continue to be widespread.

[0003]

[Problems that the Invention is to Solve] Clips used for suturing cuts that are constructed from metals remain in the furnace even after cremation of the autopsied body. For the case of the autopsy of a corpse in particular, the metal fragments of clips that remain in the furnace after cremation can cause emotional distress for the deceased's family, and give rise to various kinds of trouble, such as inviting unnecessary doubts as to the cause of death. Because of this, suturing after autopsies has had to be done by hand suturing and not with clips. However, when hand suturing is done, not only is a long period for processing after autopsy required, but there are times where the needle may prick a finger tip, and a finger may be injured contacting the needle. On these occasions, there is the danger of exposure to AIDS or hepatitis.

[0004]

[Goal of the Invention] This invention offers a suturing device, which, in addition to being able to easily suture the incisions of an autopsied body, does not remain in the cremation furnace after cremation and is completely consumed, and which can be utilized even for autopsies of corpses.

[0005]

[Means of Solving the Problems] The suturing device pertaining to this invention is characterized in that (a) it is constructed in a U-shape or \supset -shape from a connecting stem part 11 and from needle stem parts 12 and 13 which project out in parallel from both ends

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of the connecting stem part 11, (b) it has a hook 14 that projects out from the tips of each of these needle stem parts 12 and 13 in the direction of the other opposite needle stem part (12 or 13), (c) at the part at which hook tip 16 extends from the point 15 of each of the needle stem parts 12-13, the intersecting angle α between surface 17, which is a part that faces the other parallel needle stems (12 and 13) and the stem core 18 of the needle stem parts (12 and 13) form an acute angle, and (d) the entire body is constructed from combustible material. The tip 15 of the needle stems 12 and 13 generally has the form of a hook or an arrowhead and is inserted into the dissection body, but cannot be easily removed.

[0006] Figure 1 shows in diagrammatic form the insertion tool 21, which inserts the suturing device 19 into the autopsied body. The insertion tool 21, like a stapler which binds office papers, is formed principally from a square-shaped tube 22 of square form cross-section in which multiple suturing devices 19 are lined up and loaded, and an ejector member 23 which pushes out the suturing device 19. The interior of square-shaped tube 22 is hollow and of a square shaped cross-section in which the suturing device 19 makes interior contact. The end of this cavity is closed by a check plate 24, which is perpendicular to the lengthwise direction of the square-shaped tube 22. The connecting stem part 11 and the nail stem parts 12 and 13 of the suturing device 19, which is loaded and fitted in the cavity from the other end of the square-shaped tube 22, presses against and is held in close contact with the check plate 24. In this state, in which suturing device 19 is held in close contact, slits 25 and 25 of a length equal to that of the connecting stem part 11 are put in place at the part of the square-shaped tube 22 which faces the closely contacting connecting stem part 11 and the part of the square-shaped tube 22 which faces the left and right tips 15 and 15 of the needle stem parts 12 and 13. When there is pressure from slit 25 in one direction on the connecting stem part 11, the closely contacting suturing device 19 moves along the check plate 24 so as to be pushed out of the opposite slit 26. The ejector member 23 is pin connected to the square-shaped tube 23 *[sic]*, and the ejector shank 27, which fits within slit 25, thrusts out. When the square-shaped tube 22 and the ejector member 23 are squeezed, the ejector plate 27 travels into slit 27 and presses on the connecting stem part 11, and the suturing device 19 is ejected from the slit 26 on the other side.

[0007] Furthermore, by directing the tips 15 of the nettle stems 12 and 13 to the left and right of incision 28, the insertion tool 21 is placed into the autopsied body. When the square-shaped tube 22 and the extrusion member 23 are squeezed, and the extrusion plate 27 presses on the connecting stem part 11, the suturing device 19 is ejected from the square-shaped tube 22, the needle stem parts 12 and 13 are inserted into the autopsied body 20, and the hooks 14 become caught within the autopsied body (20). Because it is difficult to remove the needle stem parts 12 and 13 from the autopsied body, incision 28 is sutured by means of the connecting stem part 11.

[0008] It is permissible for the hook 14 to form a V-shape that has resulted from the tips of needle stem parts 12 and 13's becoming bent (Figures 1, 2, and 4), and it is permissible for the connecting stem part side (11) of the tips of the needle stems 12 and 13 to be of a Δ shape that projects up high (Figure 3).

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[0009] As it becomes more difficult to remove the needle stem parts 12 and 13 from the dissection body 20, in the same way as with the hook 14, it is permissible, to provide on the peripheral surface of the needle stem parts 12 and 13 an auxiliary hook 30 from which the previous hook 29 is positioned opposite from the tip 15 of the needle stem parts 12 and 13 (Figure 3).

[0010] It is possible to manufacture suturing device 19 as a single unit by injection molding of rigid plastic. In addition, it is possible to manufacture it by a cutting process after extrusion molding of the channel material (groove material) of the \square -shaped cross-section or U-shaped cross-section that has the protuberances of hook 14 on the inner sides of both the left and right groove edges (Figures 4 and 5). In this instance, as with the staples in a stapler for binding office papers, with single-unit injection molded items, the connecting stem material members 11a, 11b or the needle stem materials members 12a, 12b, 13a, and 13b, can be laid one on top of the other and lightly bonded together, and as with the staples with a \square -shape or U-shape, it is possible to prepare multiple connected suturing devices 19.

[0011] In addition, when manufacturing the suturing device 19 by the channel material cutting process, in leaving uncut the part 31, which is contiguous to the connecting stem part 11 of the needle stem parts 12 and 13, it is possible for suturing devices 19a and 19b to be in connected form by means of a single uncut part 31, in the same way as with the staples in a stapler for binding office papers (Figures 4 and 5).

[0012]

[Effect of the Invention] Referring to this invention,

- (1) Because the hook 14 is well embedded in the autopsied body's interior (20) and does not easily escape from the inserted needle stem sections 12 and 13, incision 28 is sutured by the connecting stem part 11, which connects the needle stem parts 12 and 13 that are inserted on the left and right sides of the incision.
- (2) Unlike surgery, in the case of an autopsy it is better if the conditions are such that there is only a short time required to close incision 28 before cremating the autopsied body 20. Especially with an autopsy of a corpse, because the autopsied body 20 is gently laid to rest and does not experience any substantial external force, the suturing device 19 is locked in the autopsied body by only the needle stem parts 12 and 13 portion that was inserted, and even when closing incision 28 by the connecting stem 11, incision 28 does not inconveniently come loose.
- (3) The suturing device 19 is manufactured at low cost by a combustible plastic molding process, and because its entire body is formed from combustible material, nothing remains in the furnace after the cremation process, and the device can be used for corpse autopsies.
- (4) Because the suturing device is utilized by inserting solely the needle stem parts 12 and 13 in the autopsied body 20, it is possible to suture incision 28 simply, easily, and effectively. In addition, there is no unsettlingly feeling of danger from the possibility of AIDS or hepatitis infection, and consequently, suturing autopsied body 20 is exceedingly convenient.

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[Brief Description of the Figures]

[Figure 1] It is a perspective view when the insertion tool of the suture device of this invention was loaded.

[Figure 2] It is a perspective view of the dissection suture device of this invention.

[Figure 3] It is a cross-section front view of the dissection suture device of this invention.

[Figure 4] It is a perspective view of the dissection suture device of this invention.

[Figure 5] It is a side elevation view of the dissection suture tool of this invention.

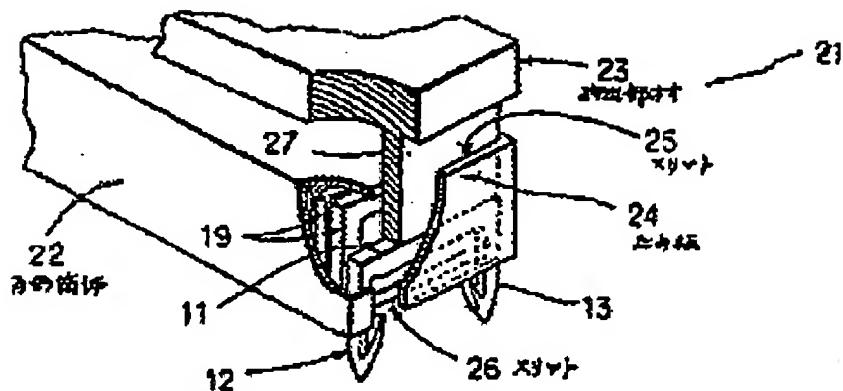
[Figure 6] It is a perspective view of the cut end of the dissection sutured by the dissection suture device of this invention.

[Description of Notations]

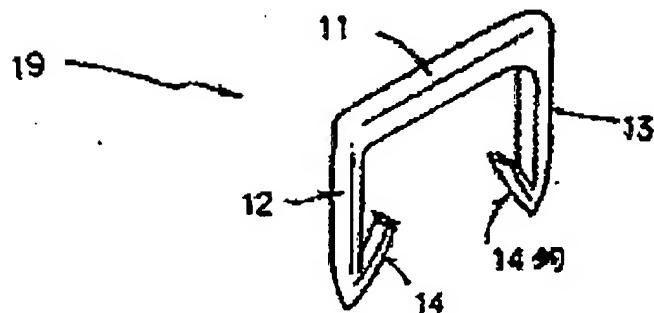
- 11 Connection Stem
- 12 Needle Stem Section
- 13 Needle Stem Section
- 14 Hook
- 15 Tip
- 16 Hook Tip
- 17 Front Face
- 18 Core
- 19 Suture Device
- 20 Dissection
- 21 Insertion Tool
- 22 Square Shape Tube
- 23 Ejector Member
- 24 Check Plate
- 25 Slit
- 26 Slit
- 27 Ejector Plate
- 28 Incision
- 29 Hook Tip
- 30 Auxiliary Hook
- 31 Near Part

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[Figure 1]

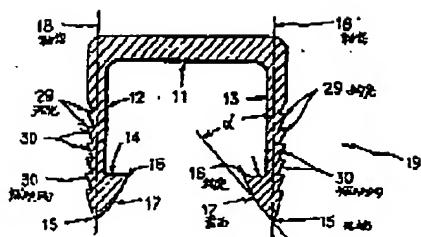


[Figure 2]

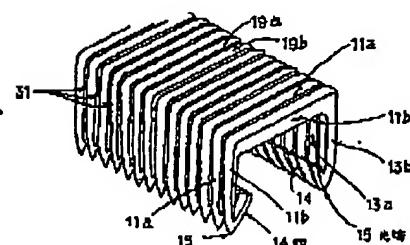


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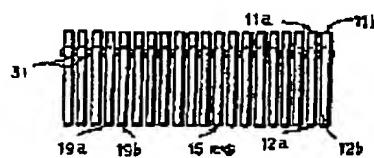
[Figure 3]



[Figure 4]



[Figure 5]



[Figure 6]

